Application No. 10/594,290

Filed: May 7, 2007

TC Art Unit: 1797

Confirmation No.: 6319

## STATUS OF THE CLAIMS

1. (Currently Amended) A lubricative composition for industrial machinery and equipment, said composition comprising a base oil selected from mineral oils, fats and oils, synthetic oils and mixtures of two or more of them, and the following components A<sub>7</sub> and (C):at least one additive selected from the following components (B) to (D);

wherein component (A) is a phosphorus compound comprising (A-1) a phosphorus-containing carboxylic acid and (A-2) a thiophosphoric ester;

wherein component (B) is a dispersant viscosity index improver;

wherein component (C) comprises (C-1) and/or (C-2), wherein (C-1) comprises at least one kind of a compound represented by the following formulas  $(\frac{1}{2})$  to (3):

$$-R^{4}-CO-NR^{2}-(CH_{2})_{p}-COOX^{4}$$
 (1)

wherein  $R^{+}$  is an alkyl group having 6 to 30 carbon atoms or an alkenyl group having 6 to 30 carbon atoms,  $R^{2}$  is an alkyl group having 1 to 4 carbon atoms,  $X^{1}$  is hydrogen, an alkyl group having 1 to 30 carbon atoms or an alkenyl group having 1 to 30 carbon atoms, and n is an integer of 1 to 4,

$$[R^{1}-CO-NR^{2}-(CH_{2})_{n}-COO]_{m}Y^{1}$$
 (2)

wherein  $R^1$  is an alkyl group having 6 to 30 carbon atoms or an alkenyl group having 6 to 30 carbon atoms,  $R^2$  is an alkyl group having 1 to 4 carbon atoms,  $Y^1$  is an alkali metal or an alkali earth metal, n is an integer of 1 to 4, and m is 1 when  $Y^1$  is an alkali metal and 2 when  $Y^1$  is an alkali earth metal, and

$$[R^{1}-CO-NR^{2}-(CH_{2})_{n}-COO]_{m}-Z-(OH)_{m}$$
 (3)

wherein  $R^1$  is an alkyl group having 6 to 30 carbon atoms or an alkenyl group having 6 to 30 carbon atoms,  $R^2$  is an alkyl

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group having 1 to 4 carbon atoms, Z is a residue having a hydroxyl group removed from a polyhydric alcohol with two or more valences, m is an integer of 1 or more, m' is an integer of 0 or more, m + m' is a valence number of Z, and n is an integer of 1 to 4,

and wherein (C-2) comprises a compound represented by the following formula (4):

$$R^3$$
-CH<sub>2</sub>COOH (4)

wherein  $R^3$  is an alkyl group having 7 to 29 carbon atoms, an alkenyl group having 7 to 29 carbon atoms or a group represented by the formula (5):

$$R^4 - C_6 H_4 O -$$
 (5)

wherein  ${\ensuremath{\text{R}}}^4$  is an alkyl group having 1 to 20 carbon atoms or hydrogen; and

wherein component (D) is an ester oiliness improver.

## 2.-9. (Canceled).

10. (Currently Amended) A lubricative composition for industrial machinery and equipment which comprises a base oil selected from mineral oils, fats and oils, synthetic oils and mixtures of two or more of them; component (C); and at least one additive selected from components (A), (B) and (D);

wherein component (A) comprises (A-1) a phosphorus-containing carboxylic acid or (A-2) a thiophosphoric ester;

wherein component (B) is a dispersant viscosity index improver; wherein component (C) comprises (C-1) and/or (C-2), wherein (C-1) comprises at least one kind of a compound represented by the following formulas  $(\frac{1}{2})$  to (3):

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wherein  $R^{1}$  is an alkyl group having 6 to 30 carbon atoms or an alkenyl group having 6 to 30 carbon atoms,  $R^{2}$  is an alkyl group having 1 to 4 carbon atoms,  $X^{1}$  is hydrogen, an alkyl group having 1 to 30 carbon atoms or an alkenyl group having 1 to 30 carbon atoms, and n is an integer of 1 to 4,

$$[R^{1}-CO-NR^{2}-(CH_{2})_{n}-COO]_{m}Y^{1}$$
(2)

wherein  $R^1$  is an alkyl group having 6 to 30 carbon atoms or an alkenyl group having 6 to 30 carbon atoms,  $R^2$  is an alkyl group having 1 to 4 carbon atoms,  $Y^1$  is an alkali metal or an alkali earth metal, n is an integer of 1 to 4, and m is 1 when  $Y^1$  is an alkali metal and 2 when  $Y^1$  is an alkali earth metal, and

$$[R^{1}-CO-NR^{2}-(CH_{2})_{n}-COO]_{m}-Z-(OH)_{m'}$$
 (3)

wherein  $R^1$  is an alkyl group having 6 to 30 carbon atoms or an alkenyl group having 6 to 30 carbon atoms,  $R^2$  is an alkyl group having 1 to 4 carbon atoms, Z is a residue having a hydroxyl group removed from a polyhydric alcohol with two or more valences, m is an integer of 1 or more, m' is an integer of 0 or more, m + m' is a valence number of Z, and n is an integer of 1 to 4,

and wherein component (C-2) comprises a compound represented by the following formula (4):

$$R^3-CH_2COOH (4)$$

wherein  ${\bf R}^3$  is an alkenyl group having 7 to 29 carbon atoms or a group represented by the formula (5):

$$R^4 - C_6 H_4 O -$$
 (5)

wherein  ${\ensuremath{\text{R}}}^4$  is an alkyl group having 1 to 20 carbon atoms or hydrogen; and

wherein component (D) is an ester oiliness improver which is an ester of a polyhydric alcohol and a fatty acid of monobasic

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acids and is any one selected from the following esters of (D-1) to (D-3):

- (D-1): an ester of a polyhydric alcohol and an unsaturated fatty acid containing a partial ester with the degree of esterification of 1 and a partial ester with the degree of esterification of 2 or more;
- (D-2): a whole ester of a polyhydric alcohol and a mixture of fatty acids, wherein the fatty acids are short-chained fatty acids and long-chained fatty acids; and
- (D-3): an ester of a polyhydric alcohol and a branched saturated fatty acid containing a partial ester with the degree of esterification of 1 and a partial ester with the degree of esterification of 2 or more.

## 11.-13. (Canceled)

14. (Currently Amended) A lubricative composition for industrial machinery and equipment, the composition consisting essentially of a base oil selected from mineral oils, fats and oils, synthetic oils and mixtures of two or more of them, and component (C), wherein component (C) consists of (C-1) and/or (C-2),

Wherein component wherein (C-1) consists of at least one compound represented by the following formulas  $(\frac{1}{2})$  to (3):

 $-R^{4}-CO-NR^{2}-(CH_{2})_{n}-COOX^{4}$  (1)

wherein  $R^{+}$  is an alkyl group having 6 to 30 carbon atoms or an alkenyl group having 6 to 30 carbon atoms,  $R^{2}$  is an alkyl group having 1 to 4 carbon atoms,  $X^{+}$  is hydrogen, an alkyl group having 1 to 30 carbon atoms or an alkenyl group having 1 to 30 carbon atoms, and n is an integer of 1 to 4,

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$$[R^{1}-CO-NR^{2}-(CH_{2})_{n}-COO]_{m}Y^{1}$$
 (2)

wherein  $R^1$  is an alkyl group having 6 to 30 carbon atoms or an alkenyl group having 6 to 30 carbon atoms,  $R^2$  is an alkyl group having 1 to 4 carbon atoms,  $Y^1$  is an alkali metal or an alkali earth metal, n is an integer of 1 to 4, and m is 1 when  $Y^1$  is an alkali metal and 2 when  $Y^1$  is an alkali earth metal, and

$$[R^{1}-CO-NR^{2}-(CH_{2})_{n}-COO]_{m}-Z-(OH)_{m'}$$
 (3)

wherein  $R^1$  is an alkyl group having 6 to 30 carbon atoms or an alkenyl group having 6 to 30 carbon atoms,  $R^2$  is an alkyl group having 1 to 4 carbon atoms, Z is a residue having a hydroxyl group removed from a polyhydric alcohol with two or more valences, m is an integer of 1 or more, m' is an integer of 0 or more, m + m' is a valence number of Z, and n is an integer of 1 to 4,

and wherein (C-2) is a compound represented by the following formula (4):

$$R^3$$
-CH<sub>2</sub>COOH (4)

wherein  $R^3$  is an alkenyl group having 7 to 29 carbon atoms or a group represented by the formula (5):

$$R^4 - C_6 H_4 O -$$
 (5)

wherein  ${\ensuremath{\text{R}}}^4$  is an alkyl group having 1 to 20 carbon atoms or hydrogen.